

 Independent Verification & Validation Facility	Work Instruction for Selecting IV&V Facility Research Initiatives	IVV 09-3-3 Revision: A Effective Date: November 3, 2004
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APPROVAL SIGNATURES		DATE
Gregory Blaney (original signature on file)	QMS Management Representative	10/29/2004

REVISION HISTORY			
Rev. No.	Description of Change	Author	Effective Date
Basic	Initial Release	Ken McGill	09/10/2003
A	Updated reference documents to include relevant standards. Evaluated and updated the metrics collected as a result of this process.	Wes Deadrick	11/03/2004

REFERENCE DOCUMENTS	
Document Number	Document Title
IVV 16	Control of Quality Records System Level Procedure
NASA STD 8739.8	Standard for Software Assurance
NPR 1441.1	NASA Records Retention Schedules Flowchart
IVV 09-3	Research Program
IVV 09-4	Project Management System Level Procedure

CHECK THE MASTER LIST at <http://ims.ivv.nasa.gov/>
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1.0 Purpose

The purpose of this procedure is to establish a consistent method for selecting IV&V Facility Research Initiatives (FIs) to be funded through the Director's Discretionary Funds (DDF).

2.0 Scope

This procedure is applicable to all IV&V Facility Research initiatives. This procedure is applicable to the IV&V Facility Service Lead, the IV&V Facility Research Lead, the IV&V Facility Research Chair, the IV&V Facility Research Support Contractor, and other IV&V personnel involved with the research program.

3.0 Definitions and Acronyms

3.1 IV&V Practitioners

IV&V Practitioners are those people involved in the management and execution of IV&V efforts. These include IV&V Facility Government Program Managers (GPMs) and contractors.

3.2 IV&V Facility Research Initiative

Research initiative with a scope directly related to IV&V Facility business practices. IV&V Facility Research Initiatives are funded through the IV&V Facility's Directors Discretionary Fund (DDF).

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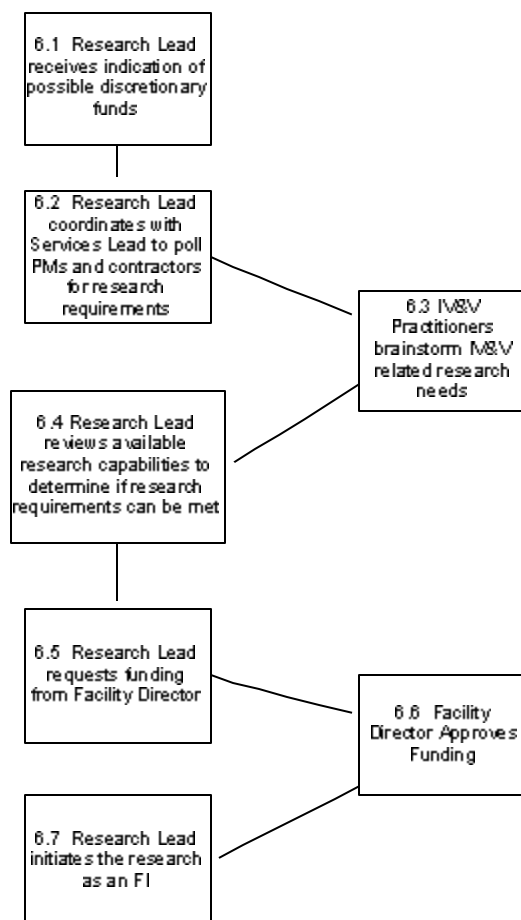
3.3 Acronyms

CI	Center Initiative
CIM	Center Initiative Management
DDF	Director's Discretionary Fund
FI	Facility Research Initiative
GPM	Government Program Manager
IV&V	Independent Verification and Validation
JPL	Jet Propulsion Laboratory
NASA	National Aeronautics and Space Administration
NPR	NASA Procedural Requirements
OSMA	Office of Safety and Mission Assurance
PI	Principal Investigator
PM	Program Manager
POC	Point of Contact
QMS	Quality Management System
RCT	Research Coordination Team
SARP	Software Assurance Research Program
SAS	Software Assurance Symposium

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4.0 Flow Chart

Figure 4-1 is a flowchart of the FI Selection Process. The procedures and work instructions for this process are described in section 6 below. The step numbers in Figure 4-1 correspond with the step numbers in section 6.



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5.0 Responsibilities

5.1 Director

Shall:

- Approve or disapprove all requests for DDF.

5.2 Research Lead (or his/her Designee)

Shall:

- Maintain an awareness of the availability of DDF which could be used to fund IV&V related research.
- Maintain awareness of IV&V related research requirements.
- Encourage IV&V project managers and practitioners to state their research requirements through periodic RCT meetings, ad hoc meetings, surveys, and discussions with user groups.
- Ensure IV&V practitioners have the opportunities to learn what research is being done and possible benefits to IV&V. This is done through periodic RCT meetings, the annual Software Assurance Symposium (SAS) and ad hoc meetings.
- Encourage IV&V practitioners as well as the general researchers to propose research which directly addresses the needs of the IV&V Facility.
- Evaluate proposals for IV&V related research to determine if they meet the stated needs and if they are executable and coordinate findings with the IV&V Services Lead.
- Request DDF from the IV&V Facility Director.
- Pass pertinent information to the Research Support Contractor so that each new FI can be tracked in the Center Initiative Management (CIM) Tool.

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5.3 Services Lead

Shall:

- Encourage IV&V practitioners to participate in efforts to define IV&V research requirements.
- Work with the IV&V Facility Research Lead in selecting research proposals to recommend for DDF and validate that selected research meets the needs of the IV&V Project Managers (PMs) and contractors.

5.4 IV&V Practitioners

Shall:

- Maintain a general awareness of what research is being done and the potential benefits to IV&V. This is done through periodic RCT meeting, the annual Software Assurance Symposium (SAS) and ad hoc meetings.
- Provide IV&V related research requirements as requested by the IV&V Facility Research Lead.
- Participate in the development of proposals to address IV&V related research needs.

6.0 Procedure

The following procedure describes the steps shown in Figure 4-1. This procedure is both opportunistic and iterative. It is implemented when an opportunity for DDF becomes apparent. It may be repeated until results are satisfactory.

6.1 The Research Lead Receives Indication of Possible Discretionary Funds

This happens through participation in staff meetings, monitoring of e-mail, etc.

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6.2 Research Lead Coordinates with Services Lead to Poll IV&V PMs and Practitioners for Research Requirements

Together, they arrange a forum in which the IV&V practitioners will be encouraged to state their needs for research.

6.3 IV&V PMs and Practitioners Brainstorm IV&V Related Research Needs

The practitioners meet to discuss problems they have encountered, limitations of current tools and practices, as well as potential new challenges. The group validates the results.

6.4 Research Lead Reviews Available Research Capabilities to Determine if Research Requirements can be Met

The IV&V Facility Research Lead reviews on-going and past research to identify resources which may be able to meet the requirements set forth by the practitioners. This review is done in coordination with the IV&V Services Lead and the IV&V practitioners. The emphasis is on practitioners' participation in the research. The Research Lead encourages practitioners and researchers to jointly develop proposals so that the results can be readily transitioned to practice. There shall be no formal solicitation for DDF proposals as most of the research shall be done by current IV&V practitioners and researchers who are already working with the IV&V Facility. Since no formal solicitation will be conducted, the IV&V Facility will accept unsolicited proposals from the contractors if they decide to pursue the possibility of addressing problems identified in the brainstorming session. The Research Lead then requests funding from the Facility Director.

6.5 Facility Director Evaluates Proposals and Determines Funding

The Facility Director reviews the proposed research and evaluates its value against other funding requests. He will determine the amount of funding to be applied to the FIs.

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6.6 The Research Lead Initiates the Research as an FI

Given the Facility Director's approval of the research, the Research Lead will require the team proposing each FI to submit a detailed research plan containing the information needed to populate the CIM Tool. This information includes a copy of a detailed proposal or research plan that must include, at a minimum, the name of the initiative, the PI name, the Government POC name, the budget for the initiative, start and end dates, a list of the deliverables with a description of each deliverable and its planned delivery date. The Research Lead will pass this information on to the research support contractor who will populate the CIM Tool.

7.0 Metrics

Each metric is to be tracked for trend analysis to understand where resources are being applied and with what results. The intent is to improve existing processes and continually revisit research focus strategies. The metrics will include:

- Trend of the number of FIs approved versus number proposed
- Trend in the number of responses to surveys or other instruments used to gather research needs

8.0 Records

The following records, as shown in Table 8-1, are generated and managed in accordance with IVV 16 and reference to NPR 1441.1, NASA Records Retention Schedules.

Document Name and Identification Number	User Responsible for Record Retention	Retention Requirement	Location
Approved FI Proposal	Research Lead	Permanent	CIM Tool and Project File
Research Plan	Research Lead	Permanent	CIM Tool

Table 8-1: Records Generated and Managed